

# SEQUENCE LISTING

<110> Georgopoulos, Katia  
Mogan, Bruce A.  
Kelly, Clair

<120> THE HELIOS GENE

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<151> 1998-02-27

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Glu Glu Pro Leu Ile Glu Ser Ser Glu Val Ala Asp Asn Arg Lys Val	
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cag gac ctt caa ggc gag gga gga atc cgg ctt ccg aat ggt aaa ctg	336
Gln Asp Leu Gln Gly Glu Gly Gly Ile Arg Leu Pro Asn Gly Lys Leu	
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aaa tgt gac gtc tgt ggc atg gtt tgc att ggg ccc aat gtg ctt atg	384
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Met	Glu	Asp	Cys 245	Glu	Gln	Glu	Glu	Pro	Ile 250	Met	Asp	Asn	Asn	Ile 255	Ser
Leu	Val	Pro	Phe 260	Glu	Arg	Pro	Ala	Val 265	Ile	Glu	Lys	Leu	Thr 270	Gly	Asn
Met	Gly 275	Lys	Arg	Lys	Ser	Ser	Thr 280	Pro	Gln	Lys	Phe	Val 285	Gly	Glu	Lys
Leu 290	Met	Arg	Phe	Ser	Tyr 295	Pro	Asp	Ile	His	Phe	Asp 300	Met	Asn	Leu	Thr
Tyr 305	Glu	Lys	Glu	Ala 310	Glu	Leu	Met	Gln	Ser	His 315	Met	Met	Asp	Gln	Ala 320
Ile	Asn	Asn	Ala 325	Ile	Thr	Tyr	Leu	Gly	Ala 330	Glu	Ala	Leu	His	Pro 335	Leu
Met	Gln	His 340	Pro	Pro	Ser	Thr	Ile	Ala 345	Glu	Val	Ala	Pro 350	Val	Ile	Ser
Ser	Ala	Tyr 355	Ser	Gln	Val	Tyr	His 360	Pro	Asn	Arg	Ile 365	Glu	Arg	Pro	Ile
Ser	Arg 370	Glu	Thr	Ala	Asp 375	Ser	His	Glu	Asn	Asn	Met 380	Asp	Gly	Pro	Ile
Ser 385	Leu	Ile	Arg	Pro 390	Lys	Ser	Arg	Pro	Gln	Glu 395	Arg	Glu	Ala	Ser	Pro 400
Ser	Asn	Ser	Cys 405	Leu	Asp	Ser	Thr	Asp	Ser 410	Glu	Ser	Ser	His	Asp 415	Asp
His	Gln	Ser 420	Tyr	Gln	Gly	His	Pro	Ala 425	Leu	Asn	Pro	Lys	Arg 430	Lys	Gln
Ser	Pro	Ala 435	Tyr	Met	Lys	Glu	Asp 440	Val	Lys	Ala	Leu	Asp 445	Thr	Thr	Lys
Ala 450	Pro	Lys	Gly	Ser	Leu	Lys	Asp 455	Ile	Tyr	Lys	Val 460	Phe	Asn	Gly	Glu
Gly 465	Glu	Gln	Ile	Arg 470	Ala	Phe	Lys	Cys	Glu	His 475	Cys	Arg	Val	Leu	Phe 480
Leu	Asp	His	Val 485	Met	Tyr	Thr	Ile	His	Met 490	Gly	Cys	His	Gly	Tyr 495	Arg
Asp	Pro	Leu 500	Glu	Cys	Asn	Ile	Cys	Gly 505	Tyr	Arg	Ser	Gln	Asp 510	Arg	Tyr
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Val	Pro	Glu	Asp	Leu	Ser	Thr	Thr	Ser	Gly	Ala	Gln	Gln	Asn	Ser	Lys
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Glu	Glu	Asn	Gly	Arg	Ala	Cys	Glu	Met	Asn	Gly	Glu	Glu	Cys	Ala	Glu
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Asp	Leu	Arg	Met	Leu	Asp	Ala	Ser	Gly	Glu	Lys	Met	Asn	Gly	Ser	His
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Arg	Asp	Gln	Gly	Ser	Ser	Ala	Leu	Ser	Gly	Val	Gly	Gly	Ile	Arg	Leu
			100					105					110		
Pro	Asn	Gly	Lys	Leu	Lys	Cys	Asp	Ile	Cys	Gly	Ile	Val	Cys	Ile	Gly
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Pro	Asn	Val	Leu	Met	Val	His	Lys	Arg	Ser	His	Thr	Glu	Arg	Pro	Phe
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Gln	Cys	Asn	Gln	Cys	Gly	Ala	Ser	Phe	Thr	Gln	Lys	Gly	Asn	Leu	Leu
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Arg	His	Ile	Lys	Leu	His	Ser	Gly	Glu	Lys	Pro	Phe	Lys	Cys	His	Leu
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Cys	Asn	Tyr	Ala	Cys	Arg	Arg	Arg	Asp	Ala	Leu	Thr	Gly	His	Leu	Arg
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Thr	His	Ser	Val	Gly	Lys	Pro	His	Lys	Cys	Gly	Tyr	Cys	Gly	Arg	Ser
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Tyr	Lys	Gln	Arg	Ser	Ser	Leu	Glu	Glu	His	Lys	Glu	Arg	Cys	His	Asn
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Tyr	Leu	Glu	Ser	Met	Gly	Leu	Pro	Gly	Val	Cys	Pro	Val	Ile	Lys	Glu
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Glu	Thr	Asn	His	Asn	Glu	Met	Ala	Glu	Asp	Leu	Cys	Lys	Ile	Gly	Ala
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Glu	Arg	Ser	Leu	Val	Leu	Asp	Arg	Leu	Ala	Ser	Asn	Val	Ala	Lys	Arg
			260					265					270		
Lys	Ser	Ser	Met	Pro	Gln	Lys	Phe	Leu	Gly	Asp	Lys	Cys	Leu	Ser	Asp
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Met	Pro	Tyr	Asp	Ser	Ala	Asn	Tyr	Glu	Lys	Glu	Asp	Met	Met	Thr	Ser
	290					295					300				
His	Val	Met	Asp	Gln	Ala	Ile	Asn	Asn	Ala	Ile	Asn	Tyr	Leu	Gly	Ala
	305				310					315					320
Glu	Ser	Leu	Arg	Pro	Leu	Val	Gln	Thr	Pro	Pro	Gly	Ser	Ser	Glu	Val
				325					330					335	
Val	Pro	Val	Ile	Ser	Ser	Met	Tyr	Gln	Leu	His	Lys	Pro	Pro	Ser	Asp
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Gly	Pro	Pro	Arg	Ser	Asn	His	Ser	Ala	Gln	Asp	Ala	Val	Asp	Asn	Leu
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Leu	Leu	Leu	Ser	Lys	Ala	Lys	Ser	Val	Ser	Ser	Glu	Arg	Glu	Ala	Ser
	370					375					380				
Pro	Ser	Asn	Ser	Cys	Gln	Asp	Ser	Thr	Asp	Thr	Glu	Ser	Asn	Ala	Glu
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Glu	Gln	Arg	Ser	Gly	Leu	Ile	Tyr	Leu	Thr	Asn	His	Ile	Asn	Pro	His
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Ala	Arg	Asn	Gly	Leu	Ala	Leu	Lys	Glu	Glu	Gln	Arg	Ala	Tyr	Glu	Val
			420					425					430		
Leu	Arg	Ala	Ala	Ser	Glu	Asn	Ser	Gln	Asp	Ala	Phe	Arg	Val	Val	Ser
		435					440					445			
Thr	Ser	Gly	Glu	Gln	Leu	Lys	Val	Tyr	Lys	Cys	Glu	His	Cys	Arg	Val
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Leu Phe Leu Asp His Val Met Tyr Thr Ile His Met Gly Cys His Gly  
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 Cys His Gly Phe Arg Asp Pro Phe Glu Cys Asn Met Cys Gly Tyr His  
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 Glu Asp Glu Asp Ala Gly Glu Asp Ser Met Lys Val Lys Asp Glu Tyr  
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 Ser Asp Arg Asp Glu Asn Ile Met Lys Pro Glu Pro Met Gly Asp Ala  
 65 70 75 80  
 Glu Glu Ser Glu Met Pro Tyr Ser Tyr Ala Arg Glu Tyr Ser Asp Tyr  
 85 90 95  
 Glu Ser Ile Lys Leu Glu Arg His Val Pro Tyr Asp Asn Ser Arg Pro  
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 Thr Ser Gly Lys Met Asn Cys Asp Val Cys Gly Leu Ser Cys Ile Ser  
 115 120 125  
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 Arg Thr His Ser Val Glu Lys Pro Tyr Lys Cys Glu Phe Cys Gly Arg  
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 Ser Tyr Lys Gln Arg Ser Ser Leu Glu Glu His Lys Glu Arg Cys Arg  
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 Arg His Ile Lys Ala Glu Met Gly Ser Glu Arg Ala Leu Val Leu Asp  
 245 250 255  
 Arg Leu Ala Ser Asn Val Ala Lys Arg Lys Ser Ser Met Pro Gln Lys  
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 Phe Ile Gly Glu Lys Arg His Cys Phe Asp Ala Asn Tyr Asn Pro Gly  
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 Tyr Met Tyr Glu Lys Glu Asn Glu Met Met Gln Thr Arg Met Met Asp  
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 Gln Ala Ile Asn Asn Ala Ile Ser Tyr Leu Gly Ala Glu Ala Phe Arg  
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 Pro Leu Val Gln Thr Pro Pro Ala Pro Thr Ser Glu Met Val Pro Val  
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 Ile Ser Ser Val Tyr Pro Ile Ala Leu Thr Arg Ala Asp Met Pro Met  
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 Gly Ala Pro Gln Glu Met Glu Lys Lys Arg Ile Leu Leu Pro Glu Lys  
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Ile Leu Pro Ser Glu Arg Gly L u Ser Pro Asn Asn Ser Ala Gln Asp  
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 Ser Thr Asp Thr Asp Ser Asn His Glu Asp Arg Gln His Leu Tyr Gln  
 385 390 395 400  
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 Lys Glu Val Pro Arg Ser Phe Glu Leu Lys Pro Pro Pro Ile Cys  
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 Leu Arg Asp Ser Ile Lys Val Ile Asn Lys Glu Gly Glu Val Met Asp  
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 Val Phe Arg Cys Asp His Cys His Val Leu Phe Leu Asp Tyr Val Met  
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 Phe Thr Ile His Met Gly Cys His Gly Phe Arg Asp Pro Phe Glu Cys  
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